

IOWA HIGHWAY RESEARCH BOARD

Minutes of January 25, 2002

Regular Board Members Present

J. Adam	K. Mahoney
J. George	M. Nahra
L. Greimann	J. Selmer
D. Julius	C. Van Buskirk
B. Keierleber	J. Weber
R. Krauel	W. Weiss

Alternate Board Members Present

R. Gould for S. Larson	J. Ites
H. D. Lee for W. Nixon	L. Jesse
S. Andrle	R. Younie
L. Brehm	

Board Members With No Representation

T. Myers

Secretary

M. Dunn

Visitors

Jenny Balis	<i>FHWA</i>
Gordon Smith	<i>Iowa Concrete Paving Association</i>
Sara Buseman	<i>Iowa Department of Transportation</i>
Ed Engle	<i>Iowa Department of Transportation</i>
Jim Grove	<i>Iowa Department of Transportation</i>
Ian MacGillivray	<i>Iowa Department of Transportation</i>
Mohammad Mujeeb	<i>Iowa Department of Transportation</i>
Wally Rippie	<i>Iowa Department of Transportation</i>
Bob Steffes	<i>Iowa Department of Transportation</i>
Robert Cody	<i>Iowa State University</i>
Brian Coree	<i>Iowa State University</i>
Fouad Fanous	<i>Iowa State University</i>
Travis Donda	<i>Iowa State University</i>
Brent Phares	<i>Iowa State University</i>
Paul Spry	<i>Iowa State University</i>
Omar Smadi	<i>Iowa State University/CTRE</i>
Dale Harrington	<i>Iowa State University/CTRE, Ctr. for PCC Pavement</i>

The meeting was held in the Large Materials Conference Room at the Iowa Department of Transportation, Ames, Iowa. The meeting was called to order at 9:15 A.M. by John Adam.

Agenda Review/Modification

- An additional agenda item, “Selection of Chair and Vice Chair for 2002” was added after item 2, “Announcement of new members/alternates.”

Announcement of New Members/Alternates

- John Adam announced that Christy Van Buskirk, Keokuk County, and Jerry Weber, Clayton County, have are now serving as regular members. Their alternates are Roger Schletzbaum, Marion County, and Todd Fonkert, Bremer County, respectively. Larry Jesse from the DOT Office of Local Systems will be serving as Kevin Mahoney’s alternate replacing Lee Wilkinson, Office of Maintenance. The U of I representatives are still to be finalized pending discussion with the university.

Announcement of Ian MacGillivray’s retirement

- John Adam mentioned that Ian MacGillivray would be retiring at the end of the month from the DOT and thanked him for his service to the IHRB. Ian has focused a lot of time and effort into the IHRB in his years with the DOT and his input and contribution will be missed.

Selection of Chair and Vice Chair for 2002

- Due to the expired term of Jacob Odgaard of The University of Iowa, the pending decision of who will be sitting on the board for the next term for The U of I, and the fine points being covered dealing with the “Conflict of Interest” issue, it was recommended that the counties switch order with the universities in the rotation for this instance and nominate a representative to serve as chair. The rotation following 2003, the end of the county/university Chair switch, will go back to city, DOT, university (ISU’s turn), and county.
- Mark Nahra nominated Wade Weiss to serve as Chair. Jerry Weber seconded. Carried with 12 yes, 0 no, and 1 abstaining.
- It was also recommended that due to the current level of familiarity with the board procedures, that the ISU representative be asked to serve as Vice Chair for 2002 representing the universities, with the expectation that The U of I member will be prepared to move into the Chair position for the following year (returning to the regular university representative rotation between ISU and The U of I). It is anticipated that other issues dealing with the new business plan, specifically “Conflict of Interest”, will be more fully discussed by that time also.
- Randall Krauel nominated Lowell Greimann for Vice Chair. Christy Van Buskirk seconded. Carried with 13 yes, 0 no, and 1 abstaining.

Approval of the Minutes

- Randall Krauel moved to approve the minutes from the December 13, 2001 meeting with no additions or corrections. Brian Keierleber seconded. Carried with 14 yes, 0 no, and 0 abstaining.

Proposal, “Reduction of Concrete Deterioration by Ettringite Using Crystal Growth Inhibition Techniques, Phase II - Field Evaluation of Inhibitor Effectiveness”

- Dr. Robert Cody, Iowa State University, reviewed results from the previous related laboratory study, TR-431. He presented information on the proposed field evaluation, including the use of Dequest 2060 as the inhibitor, the 6 locations that test sections will be taken from, the use of the top of the Science 1 building at ISU as the location of the controlled field test site, the application and testing procedures, and the anticipated results.
- The ending date on the proposal was corrected to January 31, 2004. It is a 2-year study.
- The inhibitors have tested to be very effective at very low concentrations (as low as .001% concentration), so it is assumed that applying it to the highways with the deicing brine or spraying the rock salt with the inhibitor then applying the rock salt to the highways, there would be some inhibitor present. Doing a specific application just for the purpose of getting the inhibitor into the concrete, 2 - 3 times a year, was also mentioned. The durability of the effect is unknown currently. Cost effectiveness is also an issue.
- Some of the contributing factors causing this problem were discussed. It seems to show correlation to the coarse aggregate. It has a pyrite that deteriorates and produces abundant sulfate, which increased ettringite growth. It also seems to correlate to low air content and workability problems. One leads to the other. There are also areas of the state that seem to have more of a problem.
- With a narrow band of pavements (based on age) that are more suspect than others that are in this predicament currently, the board discussed the risks and benefits in running parallel field research.
- Newer pavements are not showing the same level of problems, but it is too premature to say the “problem” is fixed. It was recommended that a field test take place with this also, to test additional benefits to new pavements.
- Due to the small window of opportunity to act on this and gain the possible benefits, the board recommended to broaden the scope and do parallel field-testing at DOT expense. It could add some expense and effort to the project in regards to monitoring/examining the results and possibly increasing materials. DOT staff will work out the details with Dr. Cody and Dr. Spry.
- It was also mentioned that some counties also have equipment to use if needed.
- Wade moved to accept the proposal, with the understanding that there will be additional field studies through the DOT. Kevin Mahoney seconded. Carried with 14 yes, 0 no, and 0 abstaining. (Proposed funding: \$131,120 - 80% Primary, 10% Secondary, 10% Street)
- Mark Dunn will coordinate a group to discuss field locations (Iowa County Interstate and Pottawattamie County were both mentioned), application and expenses. If it is a minimal change in the budget, it does not need to come back to the board for approval. Application and sample retrieval would mostly be done at the expense of the DOT. Sample analysis would be the main increase to the projects budget, which should be minimal. Mark Dunn will report the change to the board.

Review of Proposals from re-solicitation

Transportation Information System for Road System Managers

- Competing proposals were received from Dr. Hosin “David” Lee, The University of Iowa; and Dr. Brent Phares, Dr. Terry Wipf, and Dr. Lowell Greimann, Iowa State University.
- *General comments on the proposals included the following:*
 - There was a question on 18 months being timely or not in regards to the rapidly changing technology.
 - Both the proposals have strong points. A combined proposal would be good.
 - One advantage is to identify what’s out there.
 - Down the road there may be ways to utilize the technology in other circumstances to benefit counties more. This type of monitoring has more of a benefit with higher traffic volumes like the DOT experiences.
 - The collaborative process by Iowa State University was complimented. Bringing in a number of researchers with a good deal of experience in field monitoring is a plus. For example on bridges, the work that had been done on post tensioning, bridge strengthening, and all the experience with sensors would provide good information.
- Ian MacGillivray reported on recent developments on the national level dealing with homeland security, telecommunication tie (511 system), and possible grant money and research partnering in the near future. With all the upcoming decisions that will be made, it could have a major bearing on both opportunities and demands in this area. He suggested postponing taking action until after more information was available on the federal direction, which will be after the Spring AASHTO meeting at the end of April.
- There is a national security site on the TRB website which shows some of the current activity and information. ITS America’s website also has good information.
- Mark Nahra moved to table these proposals at this time and review them at the June meeting to see if the Spring AASHTO conference brings more issues to light, then decide to re-scope and re-solicit, or to proceed or not. Brian Keierleber seconded. Carried with 12 yes, 0 no, and 2 abstaining.

Review of Proposals from 1st Solicitation for FY 01-02

Development of a Method to Determine Pavement Damage Due to Detours and Haul Roads

- Competing proposals were received from Dr. Hosin “David” Lee and Dr. Asghar Bhatti, The University of Iowa, and Dr. Omar Smadi, Iowa State University/CTRE.
- *General comments on the proposals included the following:*
 - Both were quite responsive to the RFP.
 - It was agreed that a simpler, less resource intensive method would be more beneficial.
 - These proposals seemed to focus more on new technology, which has the potential for having to go out several times with equipment. This causes the concern of the procedure to determine haul road damages costing more than the damages themselves.
 - Disappointed not to see a traffic-monitoring component. The type and volume that gets routed over a county road is an important part.
 - The information that is gathered in the review of what other states do will help make a more informed decision and should help in the development of something for Iowa that is consistent, fair and as simplified as possible.

- There was an opinion that CTRE was the stronger proposal of the two due to the use of the Pavement Management System. The equipment is already in the state and used annually. The data collected can be used as the before and after information fairly easily. It would be collected objectively and damage assessment would be developed.
 - The Road Rater couldn't be used on gravel, but would be useful on pavement.
 - Some of the things that needed to be kept in consideration were listed, such as the life span of the road, the class of road, the time of year, the traffic classification differences between haul roads and detours, and the moisture.
 - The importance of the use of an advisory committee, which was listed in both proposals, was emphasized.
- *Vote to select proposal:*
 - Iowa State University, Dr. Smadi: 11 votes - ***Selected***
 - The University of Iowa, Dr. Lee: 1 vote
 - 2 Abstaining
 - *Issues/Concerns that the board would like staff to address:*
 - None
 - *Vote to approve:*
 - Wade Weiss moved to accept the Iowa State proposal with a funding split of 50% Primary, 45% Secondary, and 5% Street. Kevin Mahoney seconded. Carried with 12 yes, 0 no, and 2 abstaining.

Evaluation of Using Non-Corrosive Deicing Materials and Corrosion Reducing Treatments for Deicing Salts

- This proposal shows a combined effort between Dr. Wilfrid Nixon, The University of Iowa, and Dr. Kejin Wang, Iowa State University.
- Clarification on the RFP was given to explain that testing current products was asked for specifically and it was taken a step further to give a methodology for testing products in the future. This gives a mechanism to evaluate new products as they come along instead of having to go through another project every few years to keep up with the changes.
- The DOT would look favorably on somehow applying this methodology. A couple options are to have an approved list or to let the manufacturers have the burden of proof to be within the guidelines of this methodology.
- The DOT suggested that the following additions be made to the project: the ability for the product to undercut and an evaporation rate in regard to friction.
- It was mentioned that it was good to see that consideration would be given to the effect of products on concrete paste and aggregates.
- Randall Krauel moved to accept the proposal with the addition of exploring undercutting and evaporation being discussed during the development of the contract. The proposed funding split is 60% Primary, 35% Secondary, and 5% Street. Mark Nahra seconded. Carried with 13 yes, 0 no, and 1 abstaining.

Investigation of Materials for the Reduction and Prevention of Corrosion on Highway Maintenance Equipment

- One proposal was received from Dr. Wilfrid Nixon, The University of Iowa.
- It was good to see that lights and electronic components of the truck are included in this study.
- The time frame of the project was discussed. The RFP asked for 18 months, which starting in May, allows for 2 summers and 1 winter. It was recommended to leave the duration of the project alone for now with the option for an extension of 6 months if another winter is needed to see the effects of damage to the equipment, when back in use, that was done during the storage time.
- The possibility of doing parallel laboratory work was also suggested. This could include subjecting equipment to different levels of temperatures, humidity variations, and simulated power washes, and including a side by side comparison of “do nothing” for the economic analysis.
- Mark Nahra moved to accept the proposal with a funding split of 60% Primary, 35% Secondary, and 5% Street. Roger Gould seconded. Carried with 13 yes, 0 no, and 1 abstaining.

Investigation of the Effects of Anti-icing Salt Brine on the Deterioration of Highway Infrastructure

- One proposal was received from Dr. Fouad Fanous and Dr. Kejin Wang, Iowa State University.
- Mark Dunn reported that notice was recently received that South Dakota DOT is putting together a regional pooled fund study, which is even more extensive than what is looked at with this RFP. Instead of just looking at salt brines, it included looking at calcium chloride, magnesium chloride, CMA, sodium chloride and alternative deicers as well. The research emphasis is on the effects on concrete structures and pavements and estimating potential reduction in performance and service life. He suggested that Iowa participate in the South Dakota study and defer action on this RFP until the scope is set on the larger study. A representative from each of the states involved will help develop an RFP for the pooled fund study in the next few months. Following that, there will probably be a few narrow scope areas that would be specific to Iowa needs that would lead this board to revise the RFP that went out and re-solicit.
- The amount of funding that Iowa will put into the pooled fund study is \$50,000. This RFP went to \$180,000.
- Kevin Mahoney moved to defer action on this proposal with an open-ended time frame based on the RFP developed for the South Dakota pooled fund study. Wade Weiss seconded. Carried with 13 yes, 0 no, and 0 abstaining.

Rehabilitation of Concrete Pavements Utilizing Rubblization and Crack and Seat Methods

- One proposal was received from Dr. Brian Coree, Iowa State University/CTRE.

- It was reviewed that the RFP asked for an HMA overlay. Regardless of whether concrete or HMA is used for the overlay, the main focus of this study is to determine what structural value there is from the rubblized concrete. That information is then used in pavement design.
- The study provides a recommendation when rubblization and crack and seat are appropriate based on FWD tests. It helps with the design of an overlay thickness on either type pavement. The proposal specifically mentioned parallel studies in crack and seat and rubblization and design thicknesses that would be appropriate for each.
- The time frame of the study was discussed. It was a recommendation in the proposal that for an adequate performance history, additional time would be needed.
- It was mentioned that some of the information that is gathered in the early stages of this research would be very beneficial to have. An interim report is scheduled to be written after task 3, at 6 months.
- Wade Weiss, Greene County, has a project that could be a candidate for this research.
- Mark Nahra moved to accept the proposal with a funding split of 35% Primary and 65% Secondary. Doug Julius seconded. Carried with 13 yes, 0 on, and 1 abstaining.

Synthesis of Best Practices for Increasing Protection and Visibility of Highway Maintenance Vehicles and Workers

- One proposal was received from Steve Andrie and Dr. Ali Kamyab, Iowa State University/ CTRE.
- It was felt that the proposal missed the RFP. It mentioned a pooled funding project that was dealing with work zone and worker safety, when most of the RFP and discussion of the board was specific to maintenance vehicles. (**Clarification:** Due to input on the draft RFP from the technical contact, the final RFP was mailed out to include “Workers”. Board members and alternates each received a copy of those in the mail. The draft RFP listed only “Maintenance Vehicles”).
- The literature review part of the proposal included equipment, but it was felt that more of the focus was on worker safety.
- The first item in “areas to be covered” in the RFP asked for “snow removal operations”, and that wasn’t covered in the proposal.
- The RFP seemed to read more towards vehicles and the proposal seemed to read more towards workers.
- It was mentioned that equipment appeared to be embedded in the proposal and work zone was an additional and part of it.
- The option of deferring this until next month’s meeting and having Mark Dunn work out the details was discussed. Another option of determining this non-responsive and re-soliciting was also discussed.

- Mark Nahra moved to defer any decision being made on this proposal until the questions concerning the considerations of equipment are answered. Christy Van Buskirk seconded. Carried with 11 yes, 2 no, and 1 abstaining.
- All questions needing addressed should be sent to Mark Dunn in the next few days and he will address them with Steve Andrlle and Dr. Kamyab. This will be brought back to the board after that discussion and the board will decide to make changes to the current proposal, to proceed as it is, or not.

Items that were discussed during the review of the proposals

Additional general information on combined university efforts

- Steve Andrlle announced that ISU and The U of I contracts management have agreed to charge single overhead when working together as state agencies.

The proposed funding listed on the RFPs was discussed.

- The concern was raised about restricting or unnecessarily enhancing the researchers proposal when a specific budget guideline is listed on the RFP. All the proposals seem to come in right at the listed budget amount. Examples mentioned regarding this issue from this meeting included the following: 1) the addition of a parallel field study for the ettringite research, and 2) the addition of a laboratory study for the research on equipment corrosion.
- From the research's point of view, it was expressed that the amount listed helps designate an expected level of effort and how far the research should go. The amount also keeps proposals easier to compare and see what is received from each for roughly the same amount of money. If the amount was left open and came in quite different on competing proposals, they would be much harder to evaluate.
- It was suggested that a range could be set or budget negotiations could be allowed prior to choosing a project.
- This will be added as an agenda item for the next meeting to discuss how to incorporate this into the process so as to not hinder creativity and beneficial research or encourage unnecessary steps.

There was discussion on the business process regarding input from the PI during the meeting.

- It was expressed that it may be better to allow question and answer discussion with the PI on a non-competing proposal. When a proposal is not in competition, there isn't the opportunity for one proposal to receive an unfair advantage due to input.
- The current business plan states the following:
 - "Board meetings will be open to all visitors including those with proposals under consideration by the Board. However, those with proposals under consideration by the Board shall abstain from participation in any discussion."
 - "All proposals shall be reviewed as they were submitted, with no modification by the proposing party allowed after the final submission deadline."
- It was also expressed that if clarification was allowed during the meeting, the board could make a more informed decision, save time and it would work in favor of the research if there is a timing issue with a project.

- This issue will be added to the agenda of the next meeting. The board reserves the right to alter the business plan at any time if there is a more beneficial process that should be adopted.

New Business

County Engineers' reports on attending the Annual TRB Conference

- Jerry Weber mentioned that he was very impressed with the conference. The amount of information available was amazing and it was very well run. He attended a session on Tree and Brush and brought some information back for the PI for our current project. He also attended meetings on low-volume roads. He also attended an interesting session on the mag-lev train.
- Christy Van Buskirk also thought it was a beneficial conference and was thankful for the opportunity to go. She attended 15 technical sessions including sessions on scour critical bridges, updates on bridge inspection and developing a plan of action, issues regarding suspended OWI drivers, and a pedestrian tunnel being built under a railroad.

Discussion on Transportation Information Systems for Road System Users

- This proposal was previously approved by the board (at the June 29 meeting), but there are some of the same situations with this as there are with the proposal for Road System Mangers. With national sponsorship, Iowa and 8 other states are forming a consortium to use federal funding (\$100,000 per state) to develop the 511 System, which will respond to most of the objectives of the original RFP. It is recommended by staff that the board cancel the project due to these developments. This will free up the obligated money to benefit other research.
- If there is any follow up research needed in this area, it is expected that there would be federal funds (operational funds) available and it may not fall into "Research and Development". If there is an area (which will probably be in a totally new context) that would benefit from the IHRB funded research, it will be brought back to the board, but that is expected to be 18+ months from now.
- The contract for this research has not yet been signed. There have been no major costs incurred by either side at this time. Being sensitive to the partnerships that we are trying to develop with PIs and institutions, if there are any minor costs that need compensation, it will be handled by staff appropriately.
- It is hoped that with the new project TR-468, "Technology Transfer Program for the Iowa Highway Research Board," which involves expanding the literature search stage of developing an RFP, that a closer look can be taken at what is actively going on at the national level or with other states prior to sending out an RFP. Some of the developments are very fast paced, however, more effort needs to be in place in this area.
- It would be good to have guidelines for an initial assessment put together by staff when something, which has been previously approved, is being cancelled.
- Mark Nahra moved to cancel the project. John Selmer seconded. Carried with 13 yes, 0 no, and 1 abstaining.

The Proposal Review Form

- There was input given that the proposal review form is thought to be very useful. If forms are completed or will be in the next few days, please get them to Mark Dunn so that he can make them available to any of the PIs that are interested in this feedback. The goals of these are to both help the board member/alternates have a tool to better evaluate the proposals, and to act as feedback to the PIs so that they can design proposals that are more specific to the board's requirements.

John Adam adjourned the meeting.

Date of Next Meeting:

**THE NEXT MEETING WILL BE HELD FRIDAY, FEBRUARY 22, 2002 AT 9:00 A.M.
IN THE LARGE MATERIALS CONFERENCE ROOM, AT THE IOWA DOT,
CENTRAL COMPLEX, IN AMES, IOWA.**

Mark Dunn, IHRB Secretary